

Application No. 09/890,067
Attorney docket no. 038266-0282665

IN THE CLAIMS

This listing of claims replaces all prior version and listings of the claims in this application:

1. (Previously Presented) Process for the preparation of foamed thermoplastic polyurethanes wherein the foaming of the thermoplastic polyurethane is carried out in the presence of thermally expandable microspheres and in the presence of an additional blowing agent, said microspheres containing a hydrocarbon.
2. (Original) Process according to claim 1 wherein the hydrocarbon is an aliphatic or cycloaliphatic hydrocarbon.
3. (Previously Presented) Process according to claim 1 wherein an endothermic blowing agent is present.
4. (Previously Presented) Process according to claim 1 wherein an exothermic blowing agent is present.
5. (Previously Presented) Process according to claim 3 wherein the endothermic blowing agent comprises bicarbonates or citrates.
6. (Previously Presented) Process according to claim 1 wherein the exothermic blowing agent comprises azodicarbonamide type compounds.
7. (Previously Presented) Process according to claim 1 which is carried out by injection molding.
8. (Previously Presented) Process according to claim 1 which is carried out in a pressurized mold.

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9. (Previously Presented) Process according to claim 1 wherein the starting thermoplastic polyurethane is made by reacting a difunctional isocyanate composition comprising an aromatic difunctional isocyanate with at least one difunctional polyhydroxy compound.

10. (Original) Process according to claim 9 wherein the aromatic difunctional isocyanate comprises diphenylmethane diisocyanate.

11. (Original) Process according to claim 10 wherein the diphenylmethane diisocyanate comprises at least 80% by weight of 4,4'-diphenylmethane diisocyanate.

12. (Previously Presented) Process according to claim 9 wherein the difunctional polyhydroxy compound comprises a polyoxyalkylene diol or polyester diol.

13. (Original) Process according to claim 12 wherein the polyoxyalkylene diol comprises oxyethylene groups.

14. (Original) Process according to claim 13 wherein the polyoxyalkylene diol is a poly(oxyethylene-oxypropylene diol).

15. (Previously Presented) Process according to claim 1 wherein the amount of microspheres is between 0.5 and 4.0 parts by weight per 100 parts by weight of thermoplastic polyurethane.

16. (Original) Process according to claim 15 wherein the amount of microspheres is between 1.0 and 3.0 parts by weight per 100 parts by weight of thermoplastic polyurethane.

17. (Previously Presented) Process according to claim 1 wherein the amount of

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blowing agent is between 0.5 and 4.0 parts by weight per 100 parts by weight of thermoplastic polyurethane.

18. (Original) Process according to claim 17 wherein the amount of blowing agent is between 1.0 and 3.0 parts by weight per 100 parts by weight of thermoplastic polyurethane.

19. (Previously Presented) Foamed thermoplastic polyurethane obtained by reacting a difunctional isocyanate composition with at least one difunctional polyhydroxy compound, in the presence of thermally expandable microspheres containing hydrocarbon, and in the presence of an additional blowing agent, said polyurethane having a density of not more than 700 kg/m³.

20. (Original) Foamed thermoplastic polyurethane according to claim 19 having a density of not more than 600 kg/m³.

21. (Original) Reaction system comprising TPU and thermally expandable microspheres containing a hydrocarbon, said reaction system comprising an additional blowing agent.

22. (Previously Presented) Foamed thermoplastic polyurethane obtained by the process as defined in claim 1 said polyurethane being used in footwear or integral skin applications.

23. (Previously Presented) Customized foamed thermoplastic polyurethane obtained by the process as defined by claim 1 wherein said polyurethane is formed into any article made with thermoplastic resins including interior and exterior parts of automobiles, housings of electric devices, packaging materials, leisure goods, sporting goods and toys.

24. (Previously Presented) Process according to claim 1 wherein the thermoplastic

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polyurethane and the thermally expandable hydrocarbon-containing microspheres are present in the form of a dry blend of the thermoplastic polyurethane in the form of pellets and said microspheres, said process comprising foaming the dry blend in the presence of said additional blowing agent.

25. (Previously Presented) Process according to claim 1 wherein the thermoplastic polyurethane is present as a pre-formed thermoplastic polyurethane body comprising thermoplastic polyurethane pellets and said thermally expandable hydrocarbon-containing microspheres at least substantially encapsulated by a binding agent having an onset temperature for melt processing which is lower than the onset temperature for the melt processing temperature of the thermoplastic polyurethane, said process comprising foaming said pre-formed thermoplastic polyurethane body in the presence of said additional blowing agent.

26. (Previously Presented) Foamable thermoplastic polyurethane comprising a dry blend of pellets of thermoplastic polyurethane and thermally expandable hydrocarbon-containing microspheres and further comprising an additional blowing agent.

27. (Previously Presented) Foamed thermoplastic polyurethane obtained by foaming the foamable composition of claim 26.

28. (Previously Presented) Foamable thermoplastic polyurethane comprising a pre-formed thermoplastic polyurethane body comprising thermoplastic polyurethane pellets and thermally expandable hydrocarbon-containing microspheres at least substantially encapsulated by a binding agent having an onset temperature for melt processing which is lower than the onset temperature for the melt processing temperature of the thermoplastic polyurethane.

29. (currently amended) Foamable thermoplastic polyurethane according to claim 28

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29 wherein said polyurethane is the reaction product of difunctional isocyanate with at least one difunctional polyhydroxy compound.

30. (Previously Presented) Foamable thermoplastic polyurethane according to claim 28, further comprising an additional blowing agent.

31. (Previously Presented) Foamed thermoplastic polyurethane obtained by foaming the foamable thermoplastic polyurethane of claim 30.

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